timber at 7*l.* per load, including sawing, these two items alone would amount to 1,620*l.*, being 120*l.* more than was intended to be expended upon the whole building. Is this fair or honourable on the part of the committee, naming a certain sum, and then selecting a design which will cost at least 3,000*l.*? It is another lesson to architects, not to waste their time and talents in competing for self-appointed committees, when in most cases, as in the present, the instructions have not been taken the least notice of, but the prettiest picture chosen. Ought not the names of the committee to be made known to the architects in all cases, to prove that they are honourable men?

I am, Sir, &c.,

5th Jan. 1847. ALPHA.

THE FOUNDER OF THE RAILWAY SYSTEM.

SIR,—In the 183th number of your journal you allude to Thomas Gray, whom you designate the founder of the railway system; but being very much disposed to question the justice of your remarks, I have been at some trouble to investigate the matter, and believe the merit of its introduction is due to another party.

On perusing Thomas Gray's "Observations on a General Iron Railway, or Land Steam Conveyance," published in 1825, I find that in 1822 he sent petitions to the then ministers of state, in which an allusion is made to a former petition he had sent to Lord Sidmouth in 1821, while, as you will observe by the annexed letter, an act of Parliament was actually obtained for the first iron railway for general purposes in 1820.*

Thomas Gray sent similar petitions to his Majesty's ministers and to the Board of Agriculture in 1823, and also to the corporation of the city of London in 1824.

In the year 1822 the Liverpool and Manchester Railway was first projected, the survey of which was made by Mr. Wm. James (an intimate friend of the Mr. Baylis alluded to in the subjoined letter). In the autumn of that year he witnessed the success attending the Stratford-on-Avon and Moreton-in-the-Marsh Railway, which induced him to project the Liverpool and Manchester. But the scheme was abandoned for a time, in consequence of the opposition shewn to it by the projectors of the inland navigation throughout the kingdom; and in 1824 Mr. Stephen-son was employed to re-survey the country, and, as the sequel proved, with better success.

I am, Sir, &c.

Chester, Dec. 21. B. B.

, This does not interfere with the claim made for Mr. Gray. It is not assumed that he first projected a railway. Railways of wood have been used to facilitate the transport of coals and metals from a very early period, and even an iron railway was employed for that purpose at Coalbrookdale as early as 1767. Moreover, *steam power* was applied on the Stockton and Darlington Railway in 1605. Nevertheless, it was left for Thomas Gray to foresee the general applicability of railway travelling, arrange a system, and urge resolutely the importance of adopting it, long before the public were prepared to admit the truth of his views.

FIRE-ENGINES KEPT ON THE PREMISES.—A correspondent of the *Daily News* suggests, that in premises where steam-engines are used, an excellent provision might be made against fire by making screw joints to the water-pipes which convey water to the boiler, so as to fit the hose of a fire-engine. By this means a body of water might be readily thrown into the building, and in great quantities.

* To the Editor of *The Birmingham Journal*.

THE ORIGINATOR OF RAILWAYS.—Sir,—I beg to put your correspondent "F. B." right upon this much disputed point. The late Mr. James was *not* the "originator of railways;" he was *not* the projector of the Stratford and Moreton Railway; neither was he a Birmingham man. By reference to the act obtained in 1820 for the construction of the above railway, the first designed for general purposes, it will appear that Messrs. Hunt, Bellamy, and Bannister were solicitors to the bill, and the late Mr. Baylis was the engineer, who was a native of Birmingham. Mr. James was at that time deeply interested in mineral and *canal* property, and *opposed* to the introduction of railways; but several years subsequent to that period he certainly projected the Liverpool and Manchester Railway, but it is ridiculous to claim for Mr. James the priority.

Stourbridge. G. F. B.

BERLIN ACADEMY OF FINE ARTS EXHIBITION.

PORTRAIT OF HUMBOLDT.

THE late exhibition in the Prussian capital comprised nearly nineteen hundred works of living artists, which were placed in *twenty-five saloons*, some larger, others smaller. And, strange to say, the men of first order chanced not to have contributed to this numerous art-show; neither Cornelius, nor Overbeck, Kaulbach, Lessing, etc. We perceive, however, that for the sake of a legitimate emulation, works of *foreign* (not Prussian) artists are also received within the walls of the Berlin Academy, amongst which those of Schorn, of Munich, H. Vernet, and Rahl of Vienna, are most conspicuous.

But besides the many art-lamentations and complaints uttered in this country, those of the Germans also, which became audible on the present occasion, will be interesting and instructive. It is said there, that "*art has in Germany only patrons or opponents—but no public.*" A consequence of these untoward circumstances is the fading away of entire art-schools; like, for instance, that of Düsseldorff, where Lessing alone shines as a remaining light. A *healthy* vigour seems wanting everywhere, and whether we look at King Saul or Lear, Canute or Gottfried, they are always the same smooth countenances, content-void (*inhalsleer*). It appears from all these pictures, that the painters had never perceived either true monarchs or true saints, be it in reality or with their fancy's eyes. There they are—figures without either bone or muscle, *doughy* flesh, sweet-mellow features without marrow. These German critics praise *French* painters, and amongst the pictures exhibited at Berlin, Vernet's "Editha recognizing Harold after the Battle of Hastings," is placed in the first rank.

The admired picture of *all*, however, was the portrait of Mr. Humboldt, by Bezus. Who that has ever seen the great German *savant*, will know that to paint him is any thing but easy. But Mr. Bezus has succeeded in rendering the deep searcher, philosopher, diplomatist, and man of the world, and to impart to his portrait that penetrativeness, vast intellect, benevolence, eloquence, and versatility, which Humboldt possesses combined.

METROPOLITAN ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR.

At the first annual meeting of this association, held on the 24th ult., a report was read, which, after mentioning that a royal charter had been granted to the association, went on to state that an agreement for a lease for ninety-nine years, at a rental of 90*l.* per annum, had been entered into with the Brewers' Company, for a piece of ground opposite to the church in the Old Pancras-road, leading from King's-cross to Camden Town, which was considered well suited to the purpose, being situate in the immediate neighbourhood of a crowded district, and on a healthy and well-drained site. The object of the erections was to ensure to each family the greatest amount of accommodation at the lowest practicable expense. The rooms were to be so contrived that an ample quantity of light would be secured to each, while every set would be perfect and independent of others. Each dwelling was to be supplied with water at the rate of forty gallons per day, and with a sink, and the means of carrying off refuse and ashes through a shaft accessible from the scullery. The first building which the association purposed to erect, would consist of twenty-one sets of two rooms, and ninety sets of three rooms, of various sizes, each having the above conveniences attached; thus furnishing dwellings proportioned to the requirements of different families, and to their means of payment. In cases where there were two bed-rooms, each would have a separate entrance from the sitting-room, and the larger bed-rooms a fire-place. Under the slate sink in each scullery would be a galvanized coal-box; there would also be a meat-safe fixed against the external wall. The living rooms would be furnished with a range, boiler, and oven, and the shutters in the ground-floor rooms, so contrived as to form a table during the day. The committee of works had carefully examined all the systems and plans that had been suggested for ventilation, but they regretted to state that no plan had come under their consideration which appeared to them sufficiently secure from the danger of failure to warrant their adoption of it. According to the present mode of assessment, each set of rooms having four windows was liable to 7½d. per week window duty, while a similar set of rooms in the Albany, or in the inns of court, or in either of the universities, was liable to a tax of only 1¼d. per set—a special exemption in favour of the wealthier classes. The directors confidently hoped that an alteration in the mode of rating would shortly be effected. The plans for the new buildings were now complete, and only awaited the official seal of the authorities under the Metropolitan Buildings Act for the commencement of the works. Since September, 1841, 1,155 shares had been allotted, almost entirely among the wealthy and aristocratic classes. By the financial statement it appeared that 7,963*l.* 10s. had been received, and 2,094*l.* 3s. 7d. expended. A contract for the execution of the proposed works, for the sum of 12,345*l.*, has been entered into.

TO GLAZE AND ENAMEL THE SURFACES OF CAST IRON.

THE specification of a patent for coating and glazing cast iron, recently granted to Mr. Kenrick, of West Bromwich, gives the following particulars, which may interest our readers:—

"After the article of cast iron has been thoroughly cleaned, it will be ready to receive the coatings of the compositions, the first of which consists of 100 lbs. of calcined flints, ground to a fine powder, mixed with 75 lbs. of borax, ground fine. This mixture is then fused, and, when cooled, take 40 lbs. thereof, and add to it 5 lbs. of potters' clay; then grind them well in water, till of such a consistency that when the article to be glazed is dipped into it, it will retain a coating of about 1-16th of an inch in thickness. This is then allowed to set, and, while yet moist, the neat composition to produce the glaze is carefully sifted over the surface; this consists of 100 lbs. of Cornish stone, ground to a fine powder, 117 lbs. of borax, ground fine, 35 lbs. of soda ash, 35 lbs. of saltpetre, 35 lbs. of sifted slaked lime, 13 lbs. of white sand, and 50 lbs. of white glass, well pounded. The whole of these materials are then mixed and well vitrified; when cool, they are ground to a fine powder, which is washed and dried. Then take 45 lbs. thereof, to which add 1 lb. of soda ash, and mix the same in hot water; this is to be well stirred, and allowed to dry in a stove, when a fine powder will be produced, which, being evenly sifted over the surface of the yet moist former coating, the article is placed in a stove, and kept at a temperature of 212 deg. Fahr., for the purpose of drying the composition; it is then fired by being placed in a kiln or muffle, raised to a heat sufficient to fuze the glaze, which may then be removed and examined; and should it be found that the glazing is not perfect, the mixture is sifted over it, and it is again subjected to the action of the kiln or muffle."

In coating the interior of iron pipes, the composition is shaken through them, and the powder afterwards passed through in the same way. The patentee proposes to apply it to the surfaces of cast-iron ornaments also.

TO SET OUT A SQUARE ANGLE WITH THE TAPE ALONE.

A Country Carpenter asks "if he has a tape measure in his pocket, but no set-square with him, what is the simplest method of setting out a square angle, which can be proved mathematically true, and be easily remembered."

Make a triangle with the tape, the sides of which are either 3, 4, and 5 feet each, or any other numbers in the same proportion, as 6, 8, and 10, or 15, 20, and 25. The angle between the 2 lesser sides is a square angle. So that, if the end of the ring and the 12 feet mark are held together, and two pegs stuck in, one at the 3 and the other at the 7 feet mark, straining the tape tight, the angle at the 3 feet mark is a true square.

Proof: $(3a)^2 + (4a)^2 = (5a)^2$, whatever a may be, by 47th Euclid I. the angle between 3 and 4, its multiples, must be a right angle.

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